

## Hourly Use Rates for the Material Research Laboratory Facilities

*Rates for researchers employed by the University of Illinois at Urbana-Champaign, other public sector employers, and companies located in the EnterpriseWorks Incubator at the University of Illinois Research Park.*

If you have any questions, please contact the MRL Business Office at 217-333-1372.

The rates listed below do not include overhead fees, such as Facilities and Administration, which will be added depending on your funding instrument or agreement.

<b>Center for Excellence in Soft Materials</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Malvern Zetasizer	Particle Size and Zeta Potential Measurements	\$13	\$53
Metrohm 915 KF Ti-Touch	Volumetric Karl Fischer Titration	\$13	\$53
Metrohm 917 Coulometer	Coulometric Karl Fischer Titration	\$12	\$52
Nanoparticle tracking NS300	Nanoparticle tracking analysis	\$20	\$60
Novocontrol C47 Analyzer	Dielectric, Conductivity and Impedance Spectrometer	\$19	\$59
Q50-TGA	Thermogravimetric Analysis	\$21	\$61
Q800-DMA	Dynamic Mechanical Analysis	\$19	\$59
Shimadzu DTA-50	Differential Thermal Analysis	\$17	\$57
TA DHR-3 Rheometer	Discovery Hybrid Rheometer	\$20	\$60
TA DSC 2500	Differential Scanning Calorimetry	\$21	\$61
Tosoh EcoSEC GPC	Gel Permeation Chromatography	\$16	\$56
<b>Laser and Spectroscopy Facility</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Agilent CARY 5000	Spectrophotometry	\$18	\$58
Custom Experiment	Custom Laser Experiments	\$16	\$56
Gaertner Ellipsometer	Ellipsometry	\$18	\$58
Horiba Xplora-Nano TERS-TEPL	Tip Enhanced Raman and PL Spectroscopy	\$18	\$58
Inspire OPO Laser	Time-Domain Thermoreflectance, Custom Laser Experiments	\$15	\$55
Keyence VK-X1000	Optical Profiler	\$26	\$66
Montana Cryo Station	Closed He Cycle Optical Cryo Station	\$5	\$45
Nanophoton Raman 11	Raman Spectroscopy/Microscopy	\$22	\$62
Neaspec IR AFM	Tip Enhanced Infrared Spectroscopy	\$18	\$58
Newport Solar Simulator	Custom Experiments	\$15	\$55
Nicolet Nexus 670 FTIR	Fourier Transform Infrared Spectroscopy	\$17	\$57
OL 750 Spectroradiometer	Spectroradiometry	\$15	\$55
Oxford Cryo Station	Closed He Cycle Cryo Station	\$5	\$45
Photoluminescence	Photoluminescence/Fluorescence	\$21	\$61
Quantum Diamond Microscope	N-vacancy magnetometry	\$15	\$55
Rame-Hart Contact Angle	Contact Angle Goniometry	\$16	\$56
SLM-ISS Fluorometer	Photoluminescence/Fluorescence	\$15	\$55
Thermo-Nicolet Is-50 FTIR	Fourier-Transform IR spectroscopy	\$15	\$55
Time Resolved PL	Photoluminescence/Fluorescence	\$20	\$60
Tsunami Ti-Sapphire Laser	Time-Domain Thermoreflectance	\$15	\$55
Tsunami Ti-Sapphire Laser 2	Time-Domain Thermoreflectance	\$15	\$55
Two Photon Microscopy	Optical Microscopy	\$15	\$55
Varian Cary5G UV-VIS-NIR	Spectrophotometry	\$18	\$58
Witec Alpha NSOM	Near Field Scanning Optical Microscopy	\$16	\$56
Woollam VAS Ellipsometer	Spectroscopic Ellipsometry	\$21	\$61

Micro & Nano-Fabrication Facility			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
ADT 7122 Wafer Dicer	Automated sample dicer	\$22	\$62
AJA Sputter Coater	Sputter Coater	\$25	\$65
AJA Sputter Coater 2	Sputter Coater	\$26	\$66
AJA Sputter Coater 3	Sputter Coater	\$27	\$67
AJA Sputter Coater 4	Sputter Coater	\$27	\$67
Atomic Layer Deposition	Atomic Layer Deposition	\$26	\$66
Atomic Layer Deposition 2	Atomic Layer Deposition	\$26	\$66
Ball Bonder	Ball Bonder	\$19	\$59
Cleanroom	Cleanroom	\$18	\$58
CM Furnace	Furnace	\$8	\$48
Desert Cryo Probe Station	Probe Station	\$23	\$63
E-beam Evaporator 1	Electron Beam Evaporation	\$26	\$66
E-beam Evaporator 2	Electron Beam Evaporation	\$26	\$66
E-beam Evaporator 4	Electron Beam Evaporation	\$27	\$67
Graphene Furnace	Furnace for the growth of carbon nanotubes and graphene layers	\$7	\$47
Harrick Plasma Cleaner	Plasma Cleaner	\$19	\$59
Heidelberg Maskless Writer	Maskless wafer aligner	\$26	\$66
Hydrogen Vacuum Furnace	Furnace	\$11	\$51
Ion Mill Evaporator	Ion Mill & Thermal Evaporator	\$30	\$70
Jandel 4 Point Probe	Four point probe	\$19	\$59
Lindberg 3 Zone Furnace-2 inch	Furnace	\$10	\$50
March RIE2	Reactive Ion Etcher for polymer samples	\$22	\$62
Mitutoyo Microscope	Optical Microscope	\$22	\$62
MTI Furnace - 2 inch	Furnace	\$9	\$49
Nanomaster RIE	Reactive Ion Etcher for polymer samples	\$23	\$62
Nanoscribe 3D Printer	Laser lithography 3D printer	\$24	\$64
Olympus Microscope	Optical Microscope	\$20	\$60
Oven-Vacuum	Oven	\$4	\$44
Parylene Coater	Parylene Deposition - SCS Labcoater 2	\$24	\$64
PECVD 2	Plasma Enhanced Chemical Vapor Deposition	\$22	\$62
Probe Station	Probe Station	\$21	\$61
Raith EBPG5150	Electron Beam Lithography	\$67	\$107
Raith e-Line	Electron Beam Lithography	\$52	\$92
RaithPrep	Cleanroom	\$18	\$58
Reactor Vacuum Furnace	Furnace	\$6	\$46
RIE - Plasma-Therm	Reactive Ion Etcher	\$24	\$64
RIE - SAMCO 10NR	Reactive Ion Etcher	\$25	\$65
RTA Furnace	Furnace	\$12	\$52
Suss MJB3 - Deep UV	Mask Aligner - Deep UV	\$0	\$53
Suss MJB3 - Mask Aligner	Mask Aligner	\$0	\$53
Suss MJB4 - Mask Aligner	Mask Aligner	\$0	\$53
Thermal Evaporator	Thermal Evaporation	\$25	\$65
Tube Furnace - 6 inch	Furnace	\$7	\$47
Wedge Bonder	Wedge Bonder	\$20	\$60
Westbond Bonder	Wire Bonder	\$24	\$64

\*\* Deposition of gold, platinum, or palladium incurs an additional charge of \$4 per every 10 nm deposited or fraction thereof.

<b>Microscopy-Scanning Probe</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Asylum AFM 1	Atomic Force Microscopy	\$20	\$60
Asylum AFM 2	Atomic Force Microscopy	\$20	\$60
Asylum Cypher AFM	Atomic Force Microscopy/High Resolution	\$23	\$63
Asylum MFP-3D-Bio AFM	Atomic Force Microscopy for biological materials	\$22	\$62
Dektak 3030	Surface Profilometry	\$16	\$56
Hysitron Tip	Nanoindentation	\$10	\$50
Hysitron TriboIndenter	Nanoindentation	\$24	\$64
Leitz Microhardness	Microhardness tester	\$5	\$45
Molecular Vista PiFM-Raman	Photo-induced Force Microscopy	\$21	\$61
Piuma Nanoindenter	Nanoindentation	\$21	\$61
<b>Microscopy-Scanning Electron</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
HELIOS 600i FIB	Scanning Electron/Focused Ion Beam Microscopy	\$44	\$84
Hitachi S4800 SEM	Scanning Electron Microscopy/High Resolution	\$31	\$71
JEOL 6060LV SEM	Scanning Electron Microscopy/Low Vacuum	\$27	\$67
JEOL 7000F SEM	Scanning Electron Microscopy/Analytical SEM	\$31	\$71
Scios 2 FIB	Scanning Electron/Focused Ion Beam Microscopy	\$46	\$86
Thermo Axia ChemSEM	Scanning Electron Microscopy/Low Vacuum	\$30	\$70
<b>Microscopy-Transmission Electron</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Hitachi 9500	Transmission Electron Microscopy	\$50	\$90
JEOL 1400 TEM	Transmission Electron Microscopy	\$35	\$75
JEOL 2010 LaB6	Transmission Electron Microscopy	\$34	\$74
JEOL 2100 Cryo TEM	Transmission Electron Microscopy	\$36	\$76
Thermo Talos F200X TEM-STEM	Transmission Electron Microscopy	\$57	\$97
Thermo Themis Z TEM-STEM	(Scanning) Transmission Electron Microscopy/Analytical	\$67	\$107
ThermoFisher Glacios Cryo-TEM	Cryo-TEM for SPA, tomography and micro-ED	\$64	\$104
** Self Use sessions on the ThermoFisher Glacios Cryo-TEM that are longer than 4 hours will be charged at \$40/hr after the 4th hour.			
<b>Support Equipment</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Allied Multiprep	TEM sample preparation	\$7	\$47
Carbon Rod Coater	SEM Carbon Coater	\$10	\$50
Carbon String Coater	SEM Carbon Coater	\$10	\$50
FEI Vitrobot	Cryo-plunge for TEM sample preparation	\$14	\$54
FEI Mark IV Vitrobot	Cryo-plunge for TEM sample preparation	\$16	\$56
Gatan CryoPIPS	Cryo-Ion Miller for TEM sample preparation	\$10	\$50
Gatan PECS II	Ion Miller for SEM sample preparation	\$21	\$61
Leica EM UC6 Microtome	Microtome for TEM sample preparation	\$18	\$58
PicoIndenter	Nanoindentation	\$16	\$56
Princeton WS-25 Wire Saw	Wire Saw - High Precision	\$7	\$47
SEM Sputter Coater 1	SEM Sputter Coater	\$11	\$51
SEM Sputter Coater 2	SEM Sputter Coater	\$11	\$51
Tergeo EM Plasma Cleaner	Plasma Cleaner for TEM sample preparation	\$11	\$51
Vibratory Polisher 1	Vibratory Polisher	\$4	\$44
Vibratory Polisher 2	Vibratory Polisher	\$4	\$44

<b>Physical Property Measurement</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
QD MPMS3 SQUID	Magnetic Property Measurement System	\$7	\$47
QD MPMS3 SQUID B	Magnetic Property Measurement System	\$7	\$47
QD Opticool	Optical Cryostat	\$6	\$46
QD PPMS	Physical Property Measurement System	\$9	\$49
QD PPMS B	Physical Property Measurement System	\$9	\$49
<b>Surface Analysis</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Cameca LEAP 5000XS APT	Local Electrode Atom Probe Tomography	\$61	\$101
KRATOS AXIS XPS	X-Ray Photoelectron Spectroscopy/Imaging XPS	\$32	\$72
Kratos Supra XPS	X-Ray Photoelectron Spectroscopy / Imaging and Depth Profiling	\$40	\$80
NEC Pelletron	Ion Accelerator/Rutherford Backscattering Spectroscopy	\$47	\$87
PEI Trift-III TOF-SIMS	Secondary Ion Mass Spectroscopy/Time-of-Flight	\$28	\$68
<b>X-ray Analysis</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Bruker D8 Advance	X-ray diffraction with high-temperature stage	\$23	\$63
Dexco Laue	X-ray Diffraction/Laue	\$16	\$56
PANalytical XPert	High-resolution X-ray diffraction and reflectometry	\$15	\$55
SAXS	X-Ray scattering: SAXS, WAXS, GI-SAXS and GI-WAXS	\$14	\$54
Shimadzu EDXRF	X-Ray Fluorescence	\$23	\$63
Siemens-Bruker D5000 XRD	X-Ray Diffraction/Powder	\$13	\$53
<b>MRL Carver BioMaker Lab</b>			
Instrument	Technique	Self Use (\$/hr)	Staff Assisted & Training (\$/hr)
Autoclave	Sterilization	\$12	\$52
Biosafety Cabinet-Room 0014	Biosafety Cabinet	\$0	\$40
Biosafety Cabinet-Room 0015	Biosafety Cabinet	\$0	\$40
CarverBioMakerLab	Lab suite access for sample prep and imaging	\$1	\$41
Cellink BioX 3D bioplotter	3D printing (tissue, cell, etc. using bioinks)	\$20	\$60
CO <sub>2</sub> incubator	Cell culture	\$1	\$41
Fisher Gravity Incubator	Gravity Incubator	\$1	\$41
Fisher Isotemp Incubator	Isotemperature Incubator	\$1	\$41
GESIM nanoplotter	3D printing for cell spotting	\$20	\$60
Microfluidics flow control	Optional flow control for the printer	\$10	\$50
Microfluidics printer	3D printing of microfluidics structures	\$20	\$60
MTI electrospinner	3D printing of nanofibers	\$15	\$55
Nanodrop	DNA, RNA or protein concentration measurement	\$10	\$50
NUAIRE CO2 Incubator	CO2 incubator	\$1	\$41
Optima LE-80 Ultracentrifuge	Ultracentrifuge	\$15	\$55
Polarized Optical Microscope	Optical Microscopy	\$15	\$55
Thermo CO2 incubator-bottom	CO2 incubator	\$1	\$41
Thermo CO2 incubator-top	CO2 incubator	\$1	\$41
Zeiss Axio-Inverted Microscope	Fluorescence Microscopy	\$13	\$53
Zeiss LIVE7 Confocal Microscope	Fluorescence Confocal Microscopy	\$15	\$55

<b>Biomaterial Services Lab</b>			
<b>Instrument</b>	<b>Technique</b>	<b>Self Use (\$/hr)</b>	<b>Staff Assisted &amp; Training (\$/hr)</b>
Bio-BioSEM	Bio SEM Prep	N/A	\$59
Bio-Embed	Embedding & Deparaffinization	N/A	\$60
Bio-EMScopeVM	EM Scope Tech Time	N/A	\$80
Bio-LMSect	Trim & LM Sectioning	N/A	\$54
Bio-NegDevelop	Negative Development	N/A	\$75
Bio-NegScan	Negative Scanning	N/A	\$50
Bio-NegStain	Negative Staining & Grids	N/A	\$53
Bio-OptoMicro	Optical Camera Tech Time	N/A	\$54
Bio-TEMsect	Trim & TEM Sectioning	N/A	\$70
Reichert Ultracut	Microtome for TEM sample preparation	\$20	\$60
<b>AMTEL-Advanced Materials Testing and Evaluation Laboratory</b>			
<b>Instrument</b>	<b>Technique</b>	<b>Self Use (\$/hr)</b>	<b>Staff Assisted &amp; Training (\$/hr)</b>
Servo-hydraulic 1*	Uniaxial testing	\$50	\$90
Servo-hydraulic 2*	Uniaxial testing	\$50	\$90
Servo-hydraulic 3*	Uniaxial testing	\$50	\$90
Servo-hydraulic 4*	Uniaxial testing	\$50	\$90
Servo-hydraulic 5*	Uniaxial testing	\$50	\$90
Servo-hydraulic 6-Bi-Axial*	Bi axial testing (axial and torsion)	\$75	\$115
Electro-Mechanical 1*	Uniaxial testing	\$50	\$90
Electro-Mechanical 2*	Uniaxial testing	\$50	\$90
Electro-Mechanical 3*	Uniaxial testing	\$50	\$90
Thermo-Mechanical 1*	Uniaxial testing with combined thermal loading	\$75	\$115
Thermo-Mechanical 2*	Uniaxial testing with combined thermal loading	\$75	\$115
Thermo-Mechanical 3*	Uniaxial testing with combined thermal loading	\$75	\$115
Thermo-Mechanical 4*	Uniaxial testing with combined thermal loading	\$75	\$115
Thermo-Mechanical 5*	Uniaxial testing with combined thermal loading	\$75	\$115
Split-Hopkinson Bar*	High strain rate material testing	\$50	\$90
Creep Stand*	Temperature dependent creep testing	\$25	\$65
Rotating Bending*	Rotating bending high cycle fatigue testing	\$25	\$65
Dynamic Mechanical Analysis*	Dynamic mechanical analysis	\$50	\$90
High Speed - Thermal Camera*	High speed and/or thermal imaging	\$25	\$65
Strain - Thermal Acquisition Box*	Additional strain, thermocouple, analog input data acquisition	\$25	\$65
3D Digital Image Correlation*	Calibration, acquisition, and/or analysis of 3D surface coordinates	\$25	\$65
100lbf Electrodynamic Shaker*	Electrodynamic Shaker	\$50	\$90
Laser vibrometer*	Non-contact vibration measurements of a surface	\$25	\$65
Paint Booth	Speckle painting for digital image correlation sample preparation	\$3	\$43
Laser Engraver	Engraving for digital image correlation sample preparation	\$3	\$43
Sand Blasting	Sandblasting for digital image correlation sample preparation	\$3	\$43
Wet-Dry Sander 1	Polishing for digital image correlation sample preparation	\$3	\$43
Wet-Dry Sander 2	Polishing for digital image correlation sample preparation	\$3	\$43
Vibration Polisher	Polishing for high magnification digital image correlation sample prepara	\$3	\$43
Pico Saw	Diamond blade wafer saw for sample preparation	\$6	\$46
Ultrasonic Bath	Ultrasonic bath for sample preparation	\$6	\$46
*Maximum charge of 2 hours per day of usage.			

<b>Battery Fabrication and Characterization Laboratory</b>			
<b>Instrument</b>	<b>Technique</b>	<b>Self Use (\$/hr)</b>	<b>Staff Assisted &amp; Training (\$/hr)</b>
BatteryLabAccess	Access to 15+ tools for cells/pouch fabrication	\$1	\$41
Coin cell fabrication	Li-ion batteries coin cell fabrication in glovebox	\$1	\$41
Calendaring	Hot roller press	\$1	\$41
Electrochem characterization*	Potentiostat, gavanostat, electrochemical impedance	\$5	\$45
Magnetic stirrer	Stirring and mixing solutions	\$1	\$41
Mixer - Thinky	Slurry mixing	\$1	\$41
Pouch cell fabrication	Li-ion batteries pouch cell fabrication in glovebox	\$1	\$41
Slurry coater	Automated coater for metal foils	\$2	\$42
Vacuum Oven - Battery Lab*	Up to 150C heating under vacuum	\$2	\$42
Vigor glovebox	With sealer, die cutter, welding and crimper	\$2	\$42
* Maximum charge of 1 hour per day of usage.			